

THINKING WITH WHITEHEAD

A Free and Wild Creation of Concepts

ISABELLE STENGERS

Translated by Michael Chase

FOREWORD BY BRUNO LATOUR



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*To all the students who, in the course of the last
few years, have taken my classes on Whitehead.
It is thanks to them that I have become convinced
that, for better or worse, this book could be, and
therefore should be, written.*

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What Is Given in Experience?

Bruno Latour

Every synthesis begins “anew” and has to be taken up from the start as if for the first time.

—Isabelle Stengers

IT COULD BE ONE of those little games journalists play on television talk shows about books: “Who was the greatest philosopher of the twentieth century whose name begins with W?” Most learned people in America would answer “Wittgenstein.” Sorry. The right answer is “Whitehead”—another philosopher whose name begins with W, to be sure, but one who is vastly more daring, and also, unfortunately, much less studied. Among his many misfortunes, Alfred North Whitehead had the very bad one of provoking too much interest among theologians and too little among epistemologists. His reputation in America is thus skewed toward his theological innovations to the detriment of his epistemological theories. He also suffers from the terrible stigma of having indulged in metaphysics, something one is no longer supposed to do after the edicts of the first “W,” even though those who think that metaphysics is passé know usually much less science than Whitehead and swallow—without an ounce of criticism—hook, line, and sinker the entirety of metaphysical beliefs about nature that one can easily derive by lumping together the least-common-denominator views of geneticists and so-called cognitive scientists. As Isabelle Stengers says in her recently

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published masterpiece about Whitehead, "critical consciousness admits so many things without criticizing them" (74).

What makes Stengers's book *Penser avec Whitehead*—in English, "to think with Whitehead"—such an important work for Anglo-American philosophy is that in it the greatest philosopher of the twentieth century is finally studied in great detail by someone who is one of the most innovative philosophers of science of the present time. Now we finally have, in other words, after years of embarrassed commentaries in which people had eulogized Whitehead's God and disparaged Whitehead's science, a book in which Whitehead's science and Whitehead's God are each given their rightful place. This development is not going to put process theology on a new footing. After having worked for years on the physics of time with Ilya Prigogine,¹ and then after having written her seven-volume treatise laying out her own version of *Cosmopolitics*,² Stengers has dedicated 572 pages to her favorite philosopher, retranslating herself many pages of this most difficult of authors for the sake of her analysis in French.³

For people who have read both Stengers and Whitehead for years, the prospect of reading the prose of the first commenting on the prose of the second might be somewhat daunting. And yet, one gets exactly

¹ Because of this long and friendly collaboration, Stengers has been associated with the physics of complexity pioneered by Ilya Prigogine. In her own work since, Prigogine's influence is important not because she tried to prolong some more elaborated naturalism but because she learned from Prigogine's experience to which extent scientists would go to ignore something as crucial as time. Hence her admiration for science and her deep-seated suspicion for some of its sleight of hand.

² From *Cosmopolitiques—Tome 1: La guerre des sciences* (Paris: La Découverte—Les Empêcheurs de penser en rond, 1996), to *Cosmopolitiques—Tome 7: Pour en finir avec la tolérance* (Paris: La Découverte—Les Empêcheurs de penser en rond, 1997).

³ Isabelle Stengers teaches philosophy in Brussels. Only a small part of her works is available in English: *Power and Invention*, with a foreword by Bruno Latour (Minneapolis: University of Minnesota Press, 1997); *The Invention of Modern Science*, trans. Daniel W. Smith (Minneapolis: University of Minnesota Press, 2000); Bernadette Bensaude-Vincent and Isabelle Stengers, *A History of Chemistry*, trans. Deborah Van Dam (Cambridge, Mass.: Harvard University Press, 1996); and Leon Chertock and Isabelle Stengers, *A Critique of Psychoanalytic Reason: Hypnosis as a Scientific Problem from Lavoisier to Lacan*, trans. Martha Noel Evans (Stanford, Calif.: Stanford University Press, 1992). I have attempted to present Stengers's epistemological principle in "How to Talk about the Body? The Normative Dimension of Science Studies," in Part 3: Body Collective of "Bodies on Trial," ed. Marc Berg and Madeleine Akrich, special issue, *Body and*

the opposite result: Stengers illuminates the most obscure passages of Whitehead in a style that is supple, often witty, always generous. So readers should not be put off by the surprising subtitle, which Stengers actually borrowed from Deleuze: there is nothing “wild” in this book, except as that word might be used to characterize the freedom and invention of the author. Of those virtues the book is stuffed full.⁴

Following Whitehead, Stengers has been able to turn around many of the metaphors usually borrowed from critical thinking: “To think with Whitehead today means to sign on in advance to an adventure that will leave none of the terms we normally use as they were, even though none will be undermined or summarily denounced as a carrier of illusion” (24).

Whitehead is thoroughly put to the test here, and yet I have no doubt that, had he lived, Deleuze would have celebrated this book as a major event in the geopolitics of philosophy: a great but neglected Anglo-American is reimported into France through Belgium, and the event is taken as the occasion to reinterpret pragmatism, Bergsonism, and empiricism. What a wonder! What an interesting ecological “inter-capture”!

Although the book is a close reading, in chronological order, of the major books of Whitehead, and although it makes good use of the body of existing scholarship, it does not simply try to explain or popularize the history of Whitehead’s thought. As the title indicates so well, the aim is to think *with* Whitehead. Because she is herself a philosopher of science who has explored minutely many of the same fields as Whitehead—chemistry, physics, Darwinism, ethology, and psychology (but not mathematics nor logic, although she takes very seriously the fact that Whitehead thinks as a mathematician)—Stengers’s book can be seen as an effort to test out Whitehead’s most daring concepts on new materials and in new examples. But contrary to the rather cavalier way in which Whitehead treats his own predecessors, Stengers is very precise and follows with great attention Whitehead’s own hunches. Have no doubt: when we read this book, we are thinking *with* Stengers and *with* Whitehead all along; we are not thinking with Whitehead about what is on Stengers’s mind.

The whole book turns around the most arduous question of Whitehead, without making any attempt either to avoid the difficulties or to obfuscate his philosophy by bringing in new irrelevant conundrums. The basic question is to decide whether or not empiricism can be renewed so that

⁴ The choice of the subtitle is even more bizarre, since on page 307 Stengers reveals a clear contrast between the positivity of Whitehead and the exaggerated tropism of Deleuze for chaos and organicism.

“what is given in experience” is not simplified too much. Against the tradition inaugurated by Locke and Descartes, then pushed to the limits by Kant until it was terminated by William James, Whitehead offers another role for the object of study to play: “The object [for him] is neither the judge of our production nor the product of our judgments” (93).⁵

What has been least critically considered by the philosophical tradition, and especially by the anti-metaphysical one, is the feature of Western thought that occupied Whitehead for most of his career, what he calls “the bifurcation of nature,” that is to say, the strange and fully modernist divide between primary and secondary qualities.⁶ *Bifurcate* is a strange and awkward word, strange to the tongue and ear, but what it betokens is something even worse for our thinking. Bifurcation is what happens whenever we think the world is divided into two sets of things: one which is composed of the fundamental constituents of the universe—invisible to the eyes, known to science, real and yet valueless—and the other which is constituted of what the mind has to add to the basic building blocks of the world in order to make sense of them. Those “psychic additions,” as Whitehead calls them, are parts of common sense, to be sure, but they are unfortunately of no use to science, since they have no reality, even though they are the stuff out of which dreams and values are made.⁷

⁵ “It is because William James has refused to give to reflexive consciousness and to its pretensions to invariance, the privilege to occupy the center of the scene, that James has explicated so well [for Whitehead] what human experience requests from metaphysics and, more precisely, to what it requests metaphysics to resist” (230). Far from psychologizing everything, Whitehead sees in James—and especially in his celebrated essay on consciousness—the thinker who has ended all the pretensions of the mind. If the “actual occasion” is depsychologized, it is thanks to James.

⁶ Here is a standard definition of the problem: “However, we must admit that the causality theory of nature has its strong suit. The reason why the bifurcation of nature is always creeping back into scientific philosophy is the extreme difficulty of exhibiting the perceived redness and warmth of the fire in one system of relations with the agitated molecules of carbon and oxygen with the radiant energy from them, and with the various functioning of the material body. Unless we produce the all-embracing relations, we are faced with a bifurcated nature; namely, warmth and redness on one side, and molecules, electrons and ether on the other side. Then the two factors are explained as being respectively the cause and the mind’s reaction to the cause” (Alfred North Whitehead, *The Concept of Nature* [Cambridge: Cambridge University Press, 1920], 32).

⁷ On the political dimension of this divide, see my own footnote on Whitehead’s argument in *Politics of Nature: How to Bring the Sciences into Democracy*, trans. Catherine Porter (Cambridge, Mass.: Harvard University Press, 2004).

If I could summarize Stengers's version of Whitehead by a sort of syllogism, it could be the following one: modernist philosophy of science implies a bifurcation of nature into objects having primary and secondary qualities. However, if nature really is bifurcated, no living organism would be possible, since being an organism means being the sort of thing whose primary and secondary qualities—if they did exist—are endlessly blurred. Since we are organisms surrounded by many other organisms, nature has *not* bifurcated. Corollary: if nature has never bifurcated in the way philosophy has implied since the time of Locke, what sort of metaphysics should be devised that would pay full justice to the concrete and obstinate existence of organisms? The consequence of considering this question is radical indeed: "The question of what is an object and thus what is an abstraction must belong, if nature is not allowed to bifurcate, to *nature* and not to knowledge only" (95; my emphasis).

Hence the roughly three equal parts of the book (although Stengers divides her book in two): How to overcome the bifurcation of nature? What is an organism of a creative sort? What sort of strange God is implied for this new philosophical business?

[...]

I think it is with Whitehead's God that Stengers's book reveals its ultimate power. Commentators have often tried either to drag Whitehead in theology seminars—forgetting that his God is there to solve very precisely a technical problem of philosophy, not of belief—or to get rid of this embarrassing appendix altogether. Stengers does not hesitate to go all the way in the direction of Whitehead's argument: if nature can't be seen as bifurcated, if actual occasions are the stuff out of which the world is made, if "negative prehensions" are the only way actual occasions have to envisage the world, to apprehend it, if eternal objects are there as guardians against the shift back to substance and foundations, then a God-function is *implied* in this philosophy.

But, of course, everything now turns around the word *implied*, or *implied*. Taken superficially, it shifts the concept of God into one of a king who sits on a throne or some great plant ensconced in a sort of flowerpot, holding this position in order to close a book of metaphysics—the equivalent in philosophy of the Queen of England in politics. Or else, taken as a belief, God gives some philosophical luster to parts of the creed of some church, becoming what you confide in when you have lost confidence in the world and especially in science. Without disregarding those possibilities, Whitehead means something else altogether. *Implied* is not only a logical function—who is less a logician than the Whitehead of the famous team "Russell and Whitehead"?—but a thoroughly onto-

logical *involvement* into the world. God is the feeling for positive, instead of negative, prehensions. After years (or should I say centuries?) of associating God with negativity—think, for instance, of Hegel—it will take some time to see his role as consisting of a positivity, but that would be a welcome change! “Divine experience is, in that sense, conscious but also incomplete. God does not envisage what could be. His existence does not precede nor predict future actualizations. His envisagement comes from the thirst for some novelty that this thirst is going to induce but which, by definition, will go beyond it” (525).

In a way, it is not surprising that theology has found Whitehead so congenial, since innovations in theology are few and far between. But Stengers redresses the usual imbalance and places Whitehead’s invention of a God implicated squarely inside the world—and unable to “explicate” it, nor to “extricate” himself out of it—as the most daring but also the most indispensable consequence of his early refusal to let nature bifurcate. No more than you can choose in nature to eliminate either primary or secondary qualities can you choose, in Whitehead, between his epistemology and his theology. And, of course, it would be impossible to say that the modernist philosophy has “no need for God,” as philosophers are so proud of saying and say frequently. Their crossed-out God—to use my term—is always there but only to fill gaps in their reasoning. By taking Whitehead’s God as seriously as Whitehead’s epistemology, Stengers is leading us in the first systematic attempt at finding a metaphysical alternative to modernism. The reason why her attempts are so beautifully moving is that Whitehead has a gift of the most extraordinary rarity: he is not a creature of the culture of critique. “He knows no critique,” as one could say of a saint “she knows no sin.”

What does it mean to “speak Whiteheadian”? Amusingly, Stengers’s book begins with some of those long Whiteheadian sentences that Grendel, the dragon hero of John Gardner’s remake of *Beowulf*, thunders when he wishes to frighten his human victims out of their wits. Stengers’s book is a frightening one, no question about that: five hundred pages of purely speculative metaphysics. But Grendel, as we learn when we read the story, is not there to eat all of us up. On the contrary, he is there to remind us of our lost wisdom. How can it be that America, nay, the Harvard Philosophy Department, provided a shelter to the most important philosopher of the twentieth century and then has utterly forgotten him? Why has it taken us so long to understand Grendel’s moaning? Probably because it does not offer the easy grasp of the usual domesticated philosophical animals presented in zoos behind bars, always there to be in-

spected and endlessly monitored. Maybe this is what Deleuze meant by “a free and wild invention of concepts.” “Wild” does not mean “savage,” but out in the open, as when we go searching for some elusive wildlife.

I have always felt that Whitehead-watching had a lot to do with whale-watching as it is practiced, for instance, on the coast of San Diego in the winter. You stay on a boat for hours, see nothing, and suddenly, “There she blows, she blows!” and swiftly the whale disappears again. But with Stengers at the helm, the little ship is able to predict with great accuracy where the whale will emerge again, in a few hours. Come on board, prepare your binoculars, and be confident in the captain’s watch.

Abbreviations and References

[Works from which passages are cited in the text]

- AI Alfred N. Whitehead, *Adventures of Ideas* (New York: Free Press, 1967).
- ANW Victor Lowe, *Alfred Whitehead: The Man and His Work*, vol. 2, ed. J. B. Schneewind (Baltimore: Johns Hopkins University Press, 1990).
- CC Gilles Deleuze, *Critique et clinique* (Paris: Minuit, 1993).
- CN Alfred N. Whitehead, *The Concept of Nature* (Cambridge: Cambridge University Press, 1964).
- DANW *Dialogues of Alfred North Whitehead*, as recorded by Lucien Price (Boston: David R. Godine, 2001).
- DD William James, "The Dilemma of Determinism," in *The Will to Believe, and Other Essays in Popular Philosophy, and Human Immortality* (New York: Dover, 1956), pp. 145–183.
- DFT Steven Weinberg, *Dreams of a Final Theory* (London: Vintage Books, 1993).
- DR Gilles Deleuze, *Différence et répétition* (Paris: PUF, 1969).
- EWM Lewis S. Ford, *The Emergence of Whitehead's Metaphysics, 1925–1929* (Albany: State University of New York Press, 1984).
- Gr John Gardner, *Grendel* (London: Robin Clark, 1991).
- I Stuart Kauffman, *Investigations* (Oxford: Oxford University Press, 2000).
- IM Henri Bergson, "Introduction à la métaphysique," in *Œuvres*, édition du centenaire (Paris: PUF, 1970).
- LdS Gilles Deleuze, *Logique du sens* (Paris: Minuit, 1969).
- LP Gilles Deleuze, *Le Pli* (Paris: Minuit, 1988).
- LWL William James, "Is Life Worth Living?" in *The Will to Believe, and Other Essays in Popular Philosophy, and Human Immortality* (New York: Dover, 1956), pp. 31–62.

- MEOF** Étienne Souriau, "Du mode d'existence de l'œuvre à faire," *Bulletin de la Société Française de Philosophie*, séance du 25 février 1956, pp. 4–24.
- MP** Gilles Deleuze and Félix Guattari, *Mille plateaux* (Paris: Minuit, 1980).
- MPML** William James, "The Moral Philosopher and Moral Life," in *The Will to Believe, and Other Essays in Popular Philosophy, and Human Immortality* (New York: Dover, 1956), pp. 184–215.
- MT** Alfred N. Whitehead, *Modes of Thought* (New York: Free Press, 1968).
- PAF** William James, "The Place of Affectional Facts in a World of Pure Experience," in *Essays in Radical Empiricism* (New York: Longmans, Green and Co., 1912; repr., Lincoln: University of Nebraska Press, 1996), pp. 137–154.
- PP** William James, *The Principles of Psychology* (New York: Holt, 1890; repr., London: Macmillan, 1891).
- PR** Alfred N. Whitehead, *Process and Reality*, corrected edition by D. R. Griffin and D. W. Sherburne (New York: Free Press, 1979).
- QPh** Gilles Deleuze and Félix Guattari, *Qu'est-ce que la philosophie?* (Paris: Minuit, 1991).
- RAT** William James, "Reflex Action and Theism," in *The Will to Believe, and Other Essays in Popular Philosophy, and Human Immortality* (New York: Dover, 1956), pp. 111–144.
- RM** Alfred N. Whitehead, *Religion in the Making* (New York: Fordham University Press, 1996).
- SMW** Alfred N. Whitehead, *Science and the Modern World* (New York: Free Press, 1967).
- SPP** William James, *Some Problems in Philosophy* (New York: Longmans, Green and Co., 1911; repr., Lincoln: University of Nebraska Press, 1996).
- SS** David Abram, *The Spell of the Sensuous* (New York: Pantheon Books, 1996).
- Th** Gottfried W. Leibniz, *Essais de théodicée* (Paris: Garnier-Flammarion, 1969).
- WJEP** David Lapoujade, *William James: Empirisme et pragmatisme* (Paris: PUF, 1997).
- WPE** William James, "A World of Pure Experience," in *Essays in Radical Empiricism* (New York: Longmans, Green and Co., 1912; repr., Lincoln: University of Nebraska Press, 1996), pp. 39–91.

Other References Used Explicitly in the Text

[References whose object should not give rise to any difficulties of identification have been omitted.]

Andy Clark, *Being There: Putting Brain, Body, and World Together Again* (Cambridge, Mass.: MIT Press, 1998).

William James, "Does 'Consciousness' Exist?" in *Essays in Radical Empiricism* (New York: Longmans, Green and Co., 1912; repr., Lincoln: University of Nebraska Press, 1996), pp. 1–38.

- Gottfried Wilhelm Leibniz, *Confessio Philosophi*, trans. Robert C. Sleigh Jr. (New Haven, Conn.: Yale University Press, 2006).
- Raymond Ruyer, *La Genèse des formes vivantes* (Paris: Flammarion, 1958).
- Donald W. Sherburne, ed., *A Key to Whitehead's Process and Reality* (Bloomington: Indiana University Press, 1966).
- Daniel Stern, *The Interpersonal World of the Infant* (New York: Basic Books, 1985).

There are concepts wherever there are habits, and habits are made and unmade on the plane of immanence and radical experience: they are “conventions.” This is why English philosophy is a free and wild creation of concepts. Once a proposition is given, to what convention does it refer, what is the habit that constitutes its concept? This is the question of pragmatism.

—Gilles Deleuze and Félix Guattari, *Qu'est-ce que la Philosophie?*

Whitehead Today?

A Discreet Philosopher

He glanced at me, suspicious. "You're not paying attention."

"I am!" I said, joining my hands to show my seriousness.

But he shook his head slowly. "Nothing interests you but excitement, violence."

"That's not true!" I said.

His eye opened wider, his body brightened from end to end. "*You tell me* what's true?" he said.

"I'm trying to follow you. I do my best," I said. "You should be reasonable. What do you expect?"

The dragon thought about it, breathing slowly, full of wrath. At last he closed his eyes: "Let us try starting somewhere else," he said. "It's damned hard, you understand, confining myself to concepts familiar to a creature of the Dark Ages. Not that one age is darker than another. Technical jargon from another dark age." He scowled as if hardly capable of forcing himself on. Then, after a long moment: "The essence of life is to be found in the frustrations of established order. The universe refuses the deadening influence of complete conformity. And yet in its refusal, it passes toward novel order as a primary requisite for important experience. We have to explain the aim at forms of order, and the aim at novelty of order, and the measure of success, and the measure of failure. Apart from some understanding, however dim-witted, of these characteristics of historic process . . ." His voice trailed off (Gr, 57–58).

How does a dragon talk? Such is the problem John Gardner had to

that, as every English-speaking student has learned, is the oldest European literary work written in a vernacular tongue to have come down to us. In the original work, slow and somber, Beowulf is the hero who fights against the forces of evil: the monster Grendel, whom he kills in the first part of the poem, and the dragon whom he will likewise kill in the second part, but who will mortally wound him. In Gardner's fiction, however, it is Grendel who tells his story, for the question of knowing how one gets to be a monster produces a more interesting viewpoint than the one defined by the good. One thus discovers that if Grendel kills men, it is because he is simultaneously the witness, judge, and impotent voyeur of the strange power fiction has over them, and confers upon them. He has seen them build themselves a destiny, a heroic past, a glorious future, with the words invented for them by the *Shaper*, or the Poet in the strong sense of giver of form. Grendel is aware of the lies in these words, but this knowledge excludes him from what is taking shape before his eyes: his lucidity brings him nothing but hatred and despair. Thus, he chooses, forever solitary, to be the Great Destroyer for human beings, or more precisely the Great Deconstructor. He will derive a bitter, monotonous pleasure from the proof he never ceases inflicting on humans of the impotence of their Gods, the senseless character of their lives, and the vanity of their heroes.

Hatred is a choice, not a consequence. Before becoming the scourge of humankind, Grendel met a being much older than himself, the dragon that Beowulf was to fight one day. This dragon is "beyond good and evil," beyond both the passion for constructing and for destroying illusory constructions. For him, nihilistic rage is just as absurd as belief, for everything is tied together, everything goes hand in hand, creation and destruction, lies and authenticity. And he knows that Grendel will choose excitement and violence, despite his advice, the only one he can give: seek out gold and sit on it . . .

The homage of fiction to philosophy. It is fairly easy to give voice to a denouncer, an idol-smasher, a denier of all belief. Yet it is much harder to give voice to a nonhuman knowledge, more ancient than humankind, able to see farther than the insignificant ripple they create in the river of time. To escape the human point of view, and to do so with the calm self-evidence that is appropriate, as if the workings of the universe belonged to what is given, beyond all conquest and hypothesis, Gardner turned to the philosopher Alfred North Whitehead, copying out entire passages from Whitehead's last book, *Modes of Thought*.

In what follows, Grendel was to encounter Whitehead a second time. It happened in the course of an incursion that took him toward the circle

of the Gods, those statues that terrorized men ask in vain for protection against him. Grendel meets the blind Ork, the eldest and wisest of the priests. He decides to have some fun and, before killing Ork, he asks him to confess his faith, and say who is the King of the Gods. This time, in breathless succession, it is the God of *Science and the Modern World*, the principle of limitation, ultimate irrationality, then that of *Process of Reality*, with his infinite patience, his tender concern that nothing may be lost, that come from the blind man's lips. Grendel, bewildered, lets his prey get away.

The words of a dragon, surging forth from the depths of the ages, associated with the neutrality of one for whom epochs, importances, and arrogances succeed one another, but also words of trance, come from nowhere, able to rout Grendel, who has declared war on the poet's tale-spinning: the reader has now been warned. It is a strange tongue that will gradually be elaborated here, a language that challenges all clear distinctions between description and tale-spinning, and induces a singular experience of disorientation in the heart of the most familiar experiences. It is a language that can scandalize, or else madden, all those who think they know what they know, but also all those for whom to approach the non-knowing at the heart of all knowledge is an undertaking that is meticulous, grave, and always to be taken up again.

And yet, of the philosophers of the century that has just ended, the one who proposes this strange test was the quietest, the most gentle, and the least anxious to shock. For most of those who know it, the name of Whitehead has, until very recently, merely called up an image of the couple "Russell and Whitehead," authors of the *Principia Mathematica*, a monumental attempt at the axiomatization of mathematics. Nor is anyone supposed to be unaware that Gödel's famous theorem sounded the death-knoll for this undertaking. The name of Bertrand Russell, initially Whitehead's student at Trinity College, Cambridge, and then, between 1901 and 1910, his collaborator, is associated with many of the century's adventures. Whitehead's name, in contrast, has escaped the "Russell-and-Whitehead" association only gradually, and in the aftermath, to vibrate with its own resonance: first in the United States, and then, gradually, in other regions of the world, as translations of his great work *Process and Reality* were published.

Whitehead's personal life was not only without stories, but it has left very few traces behind. He answered the letters written to him only rarely, and at his death his personal papers were destroyed, as he had requested. This is why his biography, by Victor Lowe, is extremely

sober, especially with regard to the second part of his life (volume 2, 1910–1947): there is nothing here to arouse the appetite of the fans of biographical-intellectual speculation, in search of the “man” behind the work. To my knowledge, only Bertrand Russell, who always found ways to denigrate what he did not understand, ventured such an interpretation of the philosophical turn taken by his friend: it was, he suggested, the death of his son Eric, a fighter pilot, in 1918, that led Whitehead to reject a purely mechanistic universe and turn toward philosophy. No comment. For the rest, what can we say, except that Whitehead’s life was that of a gifted student, a respected university professor, a happy husband, and an attentive, affectionate father . . .

Whitehead was born in Kent in 1861, the son of a schoolmaster, later an Anglican pastor, who took personal charge of his education until the age of fourteen. His youth, which was happy, was that of a student as gifted for studies as he was for sports. Upon his admission to Cambridge in 1880, he was offered the rare choice of a scholarship either for classical or for mathematical studies. He chose mathematics, which he then taught at Trinity College from 1885 to 1910. Yet he did not devote himself to mathematics alone. Whitehead often said that his philosophical ideas originated from questions he had pursued throughout his life. This pursuit was reflected, in particular, in a rather astonishing historical, philosophical, theological, and literary culture, of which he was to make free use throughout his works. Yet Whitehead was no scholar. According to Victor Lowe, when he received his students on Sunday evenings near the end of his life, “what he talked about really concerned him” (ANW, 302). Whether in philosophy, theology, science, or literature, his goal was neither to inform nor to cultivate himself, but always and above all to understand.

In 1911, at the age of fifty, Whitehead went into action. Far from the protected rhythms of Cambridge, he taught at University College London, then at Imperial College, and occupied a series of administrative positions. The mathematician was henceforth associated not only with an educational thinker—which, for him, is the same thing as a thinker of human nature—but also with a philosopher of nature, thinking the space-time of relativity with and against Einstein.

This life “within the world,” divided between public responsibilities, reformist activities, and personal research, should have yielded to peace at the age of retirement, but two years before the fateful date, Whitehead was to receive the invitation that would change the course of his life: to cross the ocean and go teach at Harvard. To teach his own ideas there, which he could finally develop in the living, risky way that, for him, every educational process implies.

Whitehead set sail at Liverpool on August 16, 1924, and arrived at Boston ten days later. As early as September 23, he gave his first philosophy class, which, as he was to observe, was also the first one he ever attended. For thirteen years, Whitehead was to “think” in front of surprised, fascinated, and disconcerted students. For them, with them, and in front of them, he was to discover and explore the unexpected implications of the questions on which he had meditated all his life. Perhaps, moreover, it was the commitment that all teaching constituted for him that inspired what my book will try to follow, a mutation without equivalent in the history of philosophy. In a few years, the logician and philosopher of nature was to transform himself into a metaphysician, the creator of a strangely audacious speculative philosophy.

A homage of philosophy to fiction, John Gardner grasped the strange character of this audacity quite precisely: it is bereft of all excitement, of all appetite for destruction and scandal, simultaneously the word of a *Shaper*, or a creator of forms who might perhaps be able to disarm Grendel’s hatred, and of the dragon who, with his immemorial knowledge, knows the vanity of arguments that try to fixate time, found the order of things, refute or justify.

Whitehead died in 1947. At the time, his influence in the United States was swept away by the rising tide of analytical thought. As far as England was concerned, *Process and Reality* had gone out of print. For years, in fact, it was through the teaching and the books of the philosopher and theologian Charles Hartshorne that a thread of transmission was maintained. The God conceived by Whitehead, and affirmed by the blind man Ork, thus earned him an improbable survival through the intermediary of American theology. And the consequence of this intermediary was an initial mode of reading that was rather peculiar: that of a theism that sought to elaborate, by rational arguments alone, the definition of a God conceived as “perfection,” but which often looked favorably upon convergence with Christian doctrine (there are even Whiteheadian theological constructions that confer a philosophical foundation upon the Trinity).

For a European like me, a stranger to the theistic tradition, the true interlocutors make their appearance with Ivor Leclerc and William A. Christian. It is not that these philosophers rejected proximity with theistic concerns, but that their interest focused on the conceptual coherence proper to the work, not its contribution to theology. Thus, the question for them was not to renew the ideal of perfection associated with God, but to grasp the reasons and the extent of the conceptual creation Whitehead names God. One of these philosophers’ ambitions was to restore Whitehead to philosophy, and more particularly to European philosophy,

which constitutes the nourishing soil of his concepts (although today it is in Korea and Japan that Whitehead's thought meets with its greatest success).

Henceforth, American "Whiteheadians" are recruited among both philosophers and theologians, and the palette has been enriched by practitioners from the most diverse horizons, from ecology to feminism, practices that unite political struggle and spirituality with the sciences of education. This forms a world that is astonishingly disparate from a European viewpoint, in which a New-Age type of thought can rub elbows with metaphysicians discussing Plato, Leibniz, and Kant: a strange drop of water in the amazing American multiplicity, but which affirms itself in a singularly lively and tenacious way.

This is a "slightly secret school" as Deleuze wrote in *Le Pli* (LP, 103), and here the secret is not associated with a desire for mystery, quite the contrary: Whiteheadian philosophers are passionately attached to technical controversy, to explaining conceptual difficulties, and to evaluating possible or necessary modifications. The secrecy derives from the legacy of a philosopher who, discretely and without polemics, without ever asking his readers to thrill to the audacity and radicalism of the risk or to the threat of isolation, but with an obstinate tenderness, undertook to forge a conceptual language that forces those who acquire a taste for it to think.

Whitehead was a mathematician, and it is no doubt because he was a mathematician, because he knew and loved the way mathematics forces mathematicians to think, but also knew the rigorous constraints to which every mathematical definition must respond, that he never thought that mathematics could constitute a model that was generalizable. The kind of necessity proper to mathematical demonstrations cannot be transferred to philosophy. Philosophical reasoning that tries to be demonstrative in this sense could only produce an imitation unworthy of the adventure that, for mathematicians, is constituted by the production of a demonstration. What is more, in order to conform to the logical-mathematical model, such reasoning would require the goodwill of the readers, their submission to definitions that are simplistic compared with the extraordinary subtlety both of the situations and of the usages of natural language as it confronts these situations. Such simplistic definitions, which mutilate questions, would be the price to pay for an approach that would finally be rational. As a mathematician-cum-philosopher, Whitehead transferred from mathematics to philosophy not the authority produced by demonstration, but the adventure and commitment to and for a question, the "bad faith" with regard to every "as is well known," all consen-

If Whitehead's work is hard to approach, it is because it demands, with utter discretion, that its readers accept the adventure of the questions that will separate them from every consensus. Of course, one could say that this is the case for all "great" philosophers, those who do not limit themselves to asking a "classic" question: that of human freedom, or that of the validity of our knowledge, or of the relation between facts and values, for instance. When philosophers transform the landscape of questions, their readers cannot limit themselves to "taking cognizance" of what is proposed, or to evaluating, as "connoisseurs," the way certain well-known arguments are formulated and used, and whose authors situate themselves, construct alliances, introduce new distinctions that others will then have to discuss, conserve, or reject. Even when an argument is taken up again, its meaning changes, and the readers must accept the experience of this change. Yet even when philosophers innovate in this way, the novelty is usually introduced in a way that offers readers another kind of stability, the one that can be associated with progress. If they dare, they will be the ones to topple the present into an obsolete past, a past in which "people still believed that . . ." They will be united by the audacity of what they deny, and what they no longer need. And even a philosopher like Nietzsche, who thought he was writing for no one, because no readers could bear to situate themselves "beyond good and evil," supplied, no doubt involuntarily, the formula for a new consensus: not, of course, to live what is unlivable, or to think what is unthinkable, but to refer to the unlivable and the unthinkable, to criticize or deconstruct that in which others still "believe."

If Gardner's monster Grendel flees, helpless, instead of killing the blind priest, it is because his hatred is fed by the way human beings are situated in a history that he cannot share, a history that is the work of the *Shaper*, who transforms their lives into epics. And to disarm Grendel's hatred, it is not enough to deny progress, to reject human greatness. Time and again, the monster will perceive that negation and refutation are equally the affirmation of the superiority of those who have become capable of denying and refuting that in which others believed. Time and again, he will discern the work of the *Shaper*, and he will kill. Gardner needed Whitehead to give voice both to the priest and to the dragon because he needed statements that, in two different modes, separate Grendel from what makes him a monster. The dragon is extra-epic, but the priest, for his part, makes Grendel's powers of discernment redundant. How could one discern a mendacious construction where nothing claims to be authorized by the facts, where no argument ever claims the power to bring into agreement those who will prove, by this agreement, that they are

worthy of what is demanded of them? The priest's speech is "laughable," as Whitehead's ambition may seem laughable in the eyes of contemporary philosophers: to construct a philosophy that is openly and systematically speculative.

One of the tests Whitehead reserves for his readers thus concerns the question of what is philosophically "serious," or what every serious philosopher knows today: it is illusory to deal in a positive way with the truth of God, or of the universe. This seriousness is marked at the division between the questions that belong to the history of philosophy, and those that designate its contemporary territories. Historians of philosophy can devote hundreds of pages to Plato's Ideas, the Hegelian Spirit, the Leibnizian monads, the Cartesian God, or the vision in God of Malebranche, and they can experience the efficacy proper to these concepts, and even succeed in transmitting them. They will not be asked how they situate themselves with regard to these philosophical propositions, because they are doing the job of a historian. They are protected by their distance. Yet Whitehead is a quasi-contemporary philosopher. He wrote at the same time as Heidegger, Husserl, and Wittgenstein, who are still cited today as references for thinking about our epoch. It is thus impossible to keep him "at a distance." And yet he seems to be unaware that there is a "before Kant," when philosophers considered themselves free to speculate about God, the world, and the human soul, and an "after Kant," in which, except for a few old-fashioned naifs, they have learned the lesson of human finitude, have accepted the consequences of the fact that they do not have the benefit of a direct intuition of these ultimate realities, and have admitted that "thoughts without intuitive content are empty."

Taking a Speculative Philosophy Seriously?

How can we take seriously a book like *Process and Reality*, which opens with a chapter devoted to that speculative philosophy that we are supposed to have relegated to history? All the more so in that Whitehead does not undertake to defend the conditions of possibility of such a philosophy, or to answer the condemnation that has been decreed against it. He limits himself to lining up, in a way that is perfectly serene, as if they were so many self-evidences, statements liable to plunge serious philosophers into abysses of indignant perplexity, if they do not close the book after two pages, not even seeing how one could attack a thought that is disarming in its naivety and its dogmatism. And how could one take seriously, as a quasi-contemporary, a book that ends with the grandiose vision of a "cosmic process" such that "the love in the world

passes into the love in heaven, and floods back again into the world" (PR, 351)?

The difficulty is all the greater because it is impossible to maintain that Whitehead, as a mathematician, was naive and ignorant in philosophy, or to classify him among those who attempt a "return" to a philosophy of the "pre-Kantian" type. Does he not himself explicitly deny the possibility of such a return when he writes that "philosophy never reverts to its old position after the shock of a great philosopher" (PR, 11)? Of course, Whitehead reads Descartes, Spinoza, Leibniz, and even Kant as if they were his contemporaries, but he knows that he asks them questions that are not theirs, he knows that he does not respect what matters for them, or what made them think.

Perhaps one had to be a mathematician to realize that it is not appropriate to take seriously, for one instant, the unavoidable dilemmas and the insurmountable alternatives that philosophers produce in order to give their demonstrations a necessity that also enables them to criticize and denounce. Yet a humor of thought was also necessary in order not to overestimate this knowledge, so as not to transform it into an instrument of judgment, to know that, unlike mathematical definitions, definitions in philosophy are just as interesting by what they deny, judge, or refuse to think, as by what they affirm. Philosophical statements must generally be heard twice: in the mode of creation, they find their necessity in the problem that set the philosopher to work; in the mode of judgment, they designate what the philosopher has undertaken to silence and disqualify, that is, also the transformation of what gave rise to the problem in polemics against rivals and imposters.

Whitehead's speculative philosophy is indeed situated "after Kant," after the shock constituted for philosophy by the Kantian prohibitions, because this philosophy does not communicate with a "right to think." Thus, Whitehead does not infringe upon any prohibition, for prohibitions presuppose such a communication. The question for him is not what we can know, but what we know. If he became a philosopher, it is because questions to which, as an empirical fact, he felt that his epoch demanded an answer situated him in that tradition known as philosophy.

Reading Whitehead is a test, for he demands of his readers not only that they accept these questions, but also, and above all, that they accept the possibility that such questions are not destined to remain without an answer, the object of a meditation on the human condition, its paradoxes, and even its tragedy. More than any other philosopher, Whitehead was permeated by the vertiginous distance between the possibilities of the

universe and our human abilities to apprehend them. Yet he never bowed down before a question, for every question is a human formulation, and none, as such, transcends the human adventure. The way we formulate questions always comes from somewhere, and can always lead somewhere: not, certainly, to an answer that would be definitive at last, but rather to new ways of formulating them, in a way that no longer communicates with an insurmountable enigma, but with a problem. If there is one position that denies the finitude of the human condition, it is the one that claims to put a stop to the adventure of thought, and supposes that we know what is imposed by that condition.

If reading Whitehead means accepting to commit oneself to an adventure whose starting point is always the formulation of a problem, without the legitimacy of the problem being well-founded, without the possibility of answering it being justified in terms of the right to think, one may rightly wonder if the formulations he attempted are still able to engage us today. Such a question could, of course, be raised with regard to every philosopher, and it is the greatness of the history of philosophy that it succeeds, sometimes, in giving what one could call, with Gilles Deleuze, a "portrait of the philosopher with his problem." Even when the problem is no longer ours, the way it forced the philosopher to think, create, and reject can then become ours, in the sense that it creates the experience of the movement of thought proper to philosophical creation. Deleuze was well aware of this, he who discovered that philosophy would be his life, would be what would make his life worth living, after a first class on Plato's Ideas—even if many consider him as the anti-Platonic philosopher *par excellence*. The surest way to "kill" philosophy is to transmit it in the manner of a science: one does not need to enter into contact with Newton's problem to learn rational dynamics—the equations of Lagrange and Hamilton define what must be retained of it—but to deal with Plato without first sharing his problem is somewhat analogous to studying butterflies on the basis of a collection of pinned butterflies, without ever having seen one fly.

Yet *Thinking with Whitehead* does not belong, properly speaking, to the history of philosophy. In it, to be sure, Whitehead will never be separated from his problem, and more precisely from the way in which he never ceased formulating and reformulating his problem. Yet this is no "portrait," for what is at stake in this book is also, and inseparably, to present Whitehead as a philosopher who belongs to our epoch. Unlike the portraitist, whose task is to make the viewers feel, to transfer what was lived and created, but without personally taking over from it, my

his work in my life. In this sense, I am part of the motley crew of “Whiteheadians,” of those ecologists, feminists, educators, theologians, and so on, who have discovered that Whitehead helped them to imagine and to fight against “ready-made” models, and above all not to despair.

The discovery that Whitehead helped me in this way is inseparable from my practical situation more than thirty years ago: that of a young philosopher who had come from the experimental sciences to philosophy because she did not accept the way researchers in science are trained, and who was trying to figure out how to situate herself with regard to these sciences. The goal, for her, was to be able to think about the creative power of these sciences—the path of critical epistemology was henceforth closed—but also about their catastrophic indifference to what they judge “non-scientific.” The path that ratifies this judgment by making the sciences, in one way or another, an “access to reality” beyond our illusions was therefore closed as well.

It could, however, be maintained that Whitehead failed, if not in his diagnosis, then at least in his prognosis with regard to science. For an important aspect of what engaged his philosophical adventure was his conviction that what is called modern science had reached a turning point, which demanded a new philosophical thought. The period when modern science had developed by repudiating philosophy had been fruitful, but as he wrote in 1925, the threat was henceforth that science might degenerate into a “medley of ad hoc hypotheses” (SMW, 17). It will be said that this threat has not materialized, and that physicists have, without the help of the philosophers, transformed the foundations of their science, and have accomplished what seemed impossible to Kant: to interrogate the origin of the Universe, of matter, and even to place in debate the question “why is there something rather than nothing?” It will also be said that biology has accomplished its revolution, and that we have learned more about living beings in a few decades than throughout the preceding centuries. Others could also say that if science is threatened today, it is rather by the way in which its traditional allies, the State and industry, have undertaken to enslave it directly through what is called the economy of knowledge, and that Whitehead’s propositions ignore what should be thought about today: not a science that is still a cousin of philosophy, trying to confer an intelligible order on what confronts us, but a technoscience for which to understand is to be able to transform, and which blindly serves those who actualize that power to transform the world.

Of course, Whitehead was only laterally interested in this last question, although one could say that the way he designated the “method of training professionals” (SMW, 196), as one of the great and most redoubtable

discoveries of the nineteenth century, has lost none of its power. Yet his goal was not to denounce professionals or to bring them culture, the "supplement of soul" they lack. Whitehead belongs to our epoch because he asks a question that is ours, that of our lack of resistance to the way in which, since the beginning of the nineteenth century, what has been called progress has redefined the world. From this viewpoint, one could say that today, at a time when it has become impossible to ignore the consequences of this progress, worrisome to say the least, Whitehead's thought finds an actuality it lacked in its own day. To be sure, there has been innovation, but also rarefaction of those who, still in Whitehead's time, took the time to think. Instead, we have to do with a veritable "cult of the scientific revolution"—a new revolution will come along to solve the questions raised by the preceding one. One must "wait for genius," and meanwhile nothing must slow down the race, the process of accumulating results by researchers who are defined, in the first instance, by competition.

Yet what, one will ask, does Whitehead suggest? Are we to believe that his concepts, formulated so long ago, miraculously conserve their relevance in a world he could not imagine? Is he the genius we were waiting for? By no means, and I must confess that the way some physicists who have withdrawn from the race to speculate have become interested in Whitehead, and have found among the "process philosophers" the sympathetic and attentive ear their colleagues refused them, does not convince me. For this interest affirms what Whitehead refused: that the questions that issue from the specialized adventure known as physics are the "big questions" that deal with reality as such. Much more positive in this regard is the interest of certain chemists or biologists, who do not aim at a summit meaning between their science and metaphysics, but discover that the Whiteheadian concepts make aspects of the situations they study interesting and significant; they do not illustrate the power of theoretical approaches that are habitual, but imposed by experimentation.

However, for a philosopher like me, interested in science, what is no doubt most important is the way Whitehead suggests putting things in perspective. It allows us to resist the identification of the question of science with that of knowledge. Confronted by science, philosophy does not have to think of human knowledge, either to make this science the accomplishment of human rationality, and extract from it epistemological or normative norms in order to diagnose, in the manner of Bergson, the limits of rational knowledge, or, like Heidegger, to denounce science as "that which does not think." Beyond their contradictions, all these philo-

sophical problematizations turn science into an accomplishment or a destiny that, beyond itself, speaks of something human, and of the knowledge to which this something human may lay claim. For Whitehead, in contrast, science must be understood as an adventure, and an adventure never enables us to draw a general lesson. When the adventurer is perplexed, when the adventure turns out badly, the question to ask is rather "what has happened to us?"

The Chinese, it is said, smiled at the naiveté of the Jesuit missionaries who reported to them the triumphs of seventeenth-century science, but all the words we have available today are laden with this "fact": "we," for our part, did not laugh. The community picked out by this "we" is the one Whitehead is addressing in the first instance. We are those who, for instance, have accepted and continue to accept the separation, proposed since the Galilean origins of modern science, between the "why" and the "how." Such a separation is always what prevails when a public question highlights what scientists propose (we know "how" to go about this . . .), and what is to be decided according to values defined as "purely human," alien to a nature supposed to be defined by the scientific "how." Such a separation gives rise to, and presupposes, an inability to resist, for as soon as it is staged and accepted, it is too late. The roles have been distributed, with the scientists on the side of innovation, and those who dispute their proposition on the side of inertia, habits, and what will eventually give in, for "you can't stop progress." And yet, we have not learned to laugh at this scenario. We are the ones who ask the question of our lack of resistance to what, in the name of progress, dismembers thought.

One does not need, however, to benefit from Chinese wisdom to question the separation between the why and the how, in particular to show that it has in fact no stable identity, and that the "how" never stops mutating. Yet this criticism will not go far, for scientists will be happy to admit it: for them, the "how" follows the advance of scientific territories and designates the "why" as what is left over, what is not scientifically demonstrable but is relative to the tastes and passions of an epoch; and it will pass, like the epoch. This was the sense in which Galileo proposed to distinguish between what he had succeeded in demonstrating, "how" bodies fall, and the question of "why" they fall in that way, a question which, as he remarked, there was "no great use" in asking: this is the domain of the imagination and of undecidable fiction. The dice are thus loaded from the outset, and the distribution unequal, implying as a previous proposition the relegation of what does not pertain to the territories conquered by scientific objectivity to the realm of fiction, human, all too human as it is.

In other words, for one who learned to think with Whitehead, the confrontation, which a few years ago inspired so many passions under the name of the “science wars,” was not at all surprising. If the “objective” sciences can relegate to undecidable fiction what has not undergone a redefinition that would finally be scientific, why would representatives of the humanities deprive themselves of transforming this fiction into a counteroffensive category to show that the so-called “hows,” finally objective, conceal the “whys” of human undertakings? As Whitehead wrote with regard to the duality between free, entrepreneurial individual spirit and regular, submissive matter bequeathed to us by the seventeenth century, “There is Aaron’s rod, and the magicians’ serpents; and the only question for philosophy is, which swallows which; or whether, as Descartes thought, they all live happy together” (SMW, 142–143).

History has proved Descartes wrong. Each “advance” of an objectivity reputed to be scientific has been acclaimed by some as a gain in rationality, and condemned by others as an attack on the subject. In fact, one could almost say that provoking denunciation has become a favorite rhetorical trick in certain scientific fields. The scandal stirred up bears witness to the conquest. The barking dogs constitute in themselves the proof that the caravan is passing, transporting the first fruits of the irresistible conquest. And the dogs are all the more useful in that the caravan in question is transporting only goods that are not very interesting at all: that is, the pretensions of “evolutionary psychology.”

What has happened to us? One of the unique aspects of Whitehead’s suggestion is that it does not contain any “bad guys,” nor an explanatory construction of continuity that refers to something we “couldn’t help.” That “adventure” is the first and the last word implies that all continuity is questionable, and that no principle of economy should prevail that allows us to forget that the resumption of a seemingly similar theme takes place in circumstances that are different every time, and with stakes that are always different. The question “what has happened to us?” is therefore not the search for an ultimate explanation, but a resource for telling our stories in another way, in a way that situates us otherwise—not as defined by the past, but as able, perhaps, to inherit from it in another way.

Whitehead’s contemporaries could, with amusement, perplexity, or scandal, wonder whether one should really incur the risks of a speculative operation, moving Heaven and Earth, God and matter, to remedy difficulties that are ultimately secondary: does not modern “progress” bear witness to the fact that, despite everything, “we” have succeeded in distinguishing ourselves from those peoples who, in fact, profited at the time from the benefits of civilizing colonialism? Times have changed, and

what may have seemed to be “excess” may be worthy of playing a role in the apprenticeship that today imposes itself with regard to ourselves. For good intentions and a conciliatory spirit are not enough. Visions of the world that pacify contradictions by weakening them will always be at the mercy of one of the terms that will transform the fragile bridge of resemblances that has united it with the other as a means of passage and conquest. And they allow us, in all good conscience, to propose to the rest of the world a thought that is finally consensual. The speculative operation attempted by Whitehead could well be more relevant today than it was in his day, because it breaks with the claim to anonymity that inhabits us and constitutes us, still and again, as “the thinking head of humanity.” To learn to resist, with regard to the “us” that made the Chinese smile, is also to learn that our adventure can indeed make people smile.

Thinking with Whitehead

Thinking with Whitehead today therefore means accepting an adventure from which none of the words that serve as our reference points should emerge unscathed, but from which none will be disqualified or denounced as a vector of illusion. All are a part of the problem, whether they refer to the whys of human experience or to the hows of “objective reality.” If compromise solutions do not suffice, it is because they try to circumvent the problem instead of raising it; that is, they try to mitigate the contradictions and to make compatible that which defines itself as conflictual. Whitehead was a mathematician, and mathematicians are they who do not bow down before contradictions but transform them into an ingredient of the problem. They are the ones who dare to “trust” in the possibility of a solution that remains to be created. Without this “trust” in a possible solution, mathematics would not exist.

This truth is the one William James called faith or belief, his only answer when confronted by those who have declared that life is *not* worth living, “the whole army of suicides (. . .) an army whose roll-call, like the famous evening gun of the British army, follows the sun round the world and never terminates” (LWL, 37). It has nothing in common with what I would call, to underline the difference, “to be confident,” that is, to continue, to carry on in the mode of “everything will work out fine.” The mathematician’s trust is inseparable from a commitment not to mutilate the problem in order to solve it and to take its demands fully into account. Yet it implies a certain deliberate amnesia with regard to the obviousness of obstacles, an active indetermination of what the terms of the problem “mean.” Transferred to philosophy, this indetermination means

that what announced itself as a foundation, authorizing a position and providing its banner to a cause, will be transformed into a constraint, which the solution will have to respect but upon which it may, if necessary, confer a somewhat unexpected signification.

To illustrate this indeterminization, I will refer to a well-known fable. There once was an old Bedouin, who, sensing that his death was imminent, gathered together his three sons and signified his last wishes to them. To the eldest, he bequeathed half his inheritance, to the second one quarter, and to the third one sixth. As he said this, he died, leaving his sons in perplexity, for the inheritance in question consisted of eleven camels.

How were they to respect the old man's will? Should they kill those of the camels whose division seemed prescribed, and share the meat among them? Was this the required filial piety? Did their father really want them to prove their love by accepting this loss? Or had he made a mistake, distracted or weakened by his imminent death? In fact, at least one error was obvious, because one-half plus a quarter plus a sixth do not make one. Yet to inherit on the basis of an interpretation that disqualifies a last wish, is this not to insult to the dead? And in this case, moreover, how could one divide? Who would take away the remainder of the division? All the ingredients were there for a fratricidal war. The three brothers nevertheless decided to try to avoid the war, that is, to wager that a solution could exist. This means that they went to see the old sage who so often plays a role in such stories. This old sage, on this occasion, told them that he could not do anything for them except to offer them what might perhaps help them: his old camel, skinny and half-blind. The inheritance now counted twelve camels: the eldest took six of them, the second three, the youngest two, and the old camel was returned to the old sage.

What did the twelfth camel accomplish? By its presence, it made possible what seemed contradictory, simultaneously obeying the father's wishes, discovering the possibility of respecting their terms, and not destroying the value of the inheritance. All this because it made it possible to bring to existence that which remained discretely undetermined in the paternal statement, the question of what it means to "share an inheritance." It is usually divided into parts, and this is what the statement seems to command. Yet this norm is only one way of answering the problem. What is required is that once the allocation has been made, the contents of the inheritance are distributed, but nothing determines what the allocation must deal with. The content of the inheritance is a given that acts as a constraint, but the role of this constraint belongs to the solution, and the question of the allocation can thus be plunged within a wider field of possibilities. Thus, the solution does not entail submission to the prob-

lematic statement, but the invention of the field in which the problem finds its solution.

The fable of the twelfth camel illuminates the meaning of what Whitehead was to call "speculative philosophy." First, it illustrates the difference between "trusting" and "being confident in." If the brothers had gone no farther than to wonder whether they could be confident in their father's intentions, their situation would remain without issue. It is only because they accepted the paternal will as an unknown, because none of them claimed to know what their father "meant," that they went to consult the old sage. And the "trust" presupposed by their procedure is not directed to the old sage himself, for the goal is not to yield to his authority rather than to the paternal authority. It is directed to the possible as such, to the possibility of a solution on the basis of which the unknown of the paternal will might find its meaning. As far as the twelfth camel added to the inheritance is concerned, it illustrates the efficacy proper to the speculative proposition. This camel will not benefit any of the brothers. It makes the division possible, in conformity with the father's will, but it is not distributed itself and is not added to any share.

The specificity of the concepts proposed by Whitehead is that, like the twelfth camel, once they have done their job, once they have transformed the way in which a situation raises a problem, they disappear without leaving a trace other than this transformation itself. This is why Whitehead can write that the interest of the speculative scheme he has constructed resides in its applications, in the transformations it carries out in our ways of explaining or characterizing our experiences. It is these transformations that are to give rise to the experience Whitehead associates with the goal of philosophy, an experience of "sheer disclosure" (MT, 49) rather than the concepts themselves. The concepts are required by the transformation of experience, but it is this disclosure that has, and always will have, the last word. For instance, the question raised by the speculative construction of God, required by Whitehead, does not imply the existence of this God. The only question is that of knowing which experiences would have been relegated to illusion—how the problem would have been mutilated—if what Whitehead names God had not been included in the conceptual arrangement constructed by Whitehead.

Yet the fact that Whitehead was able to discover that his conceptual arrangement needed God implies an aspect of his speculative philosophy that the fable of the camels does not allow us to describe, because this fable has the form of a riddle that allows one path to a solution, and only one. In the case of speculative philosophy, the role of the dying father, whose last wishes define what the solution to the problem of definition

must achieve, is not played by anyone. This is why one cannot say that the Whiteheadian proposition constitutes "the answer," finally discovered. Quite the contrary, this proposition is inseparable from the constraints that Whitehead had to impose upon himself in order to formulate the problem to be solved, for it is these constraints that make him a creator: in other words, they confer upon the solution being sought the power to oblige him to create. This is why the speculative answer formulated in *Process and Reality* is itself coherent with what it tries to bring about: "sheer disclosure." It is inseparable from an adventure in which the problem of philosophers, that is, the constraints that must be satisfied by the solution they construct, have not ceased to be reformulated.

If Whitehead is the one who brings adventures into existence, where what we seek are reasons and justifications, or what is supposed to transcend and authorize our choices, it is crucial not to conceive of this adventure as reducible to what is arbitrary or contingent. What is at stake here enables me both to characterize Whitehead's approach as "constructivist" and to defend the constructivist position against the curse that weighs it down today, a weight it transfers to the situations in which it intervenes. There are social, cultural, linguistic, neurophysiological, historical, and political constructivisms, but their common feature is demystification. In a way that bears witness in itself to the polemical power of our categories, to affirm "it's a construction" is to affirm "it is a mere construction," and it will then most often be a matter of affirming the arbitrary nature of what others believe they can justify. In particular, the reality to which the sciences claim to have access must fall silent, unable to make a significant difference between the interpretative constructions that concern it. Such claims are themselves "mere" constructions, or "narratives."

Where polemics unmasks, Whitehead addresses adventures. In *Process and Reality*, he speaks of rationalism as an "experimental adventure" (PR, 9) and of metaphysics as an "adventure of hope" (PR, 42), but he also defines, in a speculative mode, all continuity as an "adventure in change" (PR, 35). For him, then, the term "adventure" is valid simultaneously, both on an empirical level—to characterize what we are dealing with, but which also situates us—and on a speculative level. And the choice of this term accentuates a question that polemical constructivisms render secondary. There is no adventure without a risky relation to an environment that has the power to complicate this adventure, or even to doom it to failure. Likewise, there is no construction that does not raise the question of "how it holds together," or how it is affected by its environment and how it affects it.

That a bridge may hold throughout its "adventure of change," through

ment that matters in its case. And no one will say, with regard to a century-old bridge, "it's only a construction." However, it will be objected, if no one says this, it is because no one claims the contrary: no one claims that the bridge is "objective," or independent of human knowledge. Yet this answer, albeit legitimate, provides a good translation of the curse that weighs upon constructivism, that is, on its capture by a polemical network. If the notion of construction is used in a pejorative way, it is because it was initially mobilized by scientists to characterize what is not scientific, then catastrophically preserving its same connotation of arbitrariness, by the "deconstructivists," to show that scientific knowledge cannot escape the same judgment.

The fact that all continuity must be described as an "adventure" creates the possibility of escaping polemics. Instead, a set of notions organizes itself around the notion of adventure, and particularly that of a construction that "is able to hold," which, following Whitehead, and in the mathematical sense, we will call "generic." When Whitehead uses the word "generic," and also when he speaks of "generality," he is not thinking like a logician and is not giving the term the power to define a class of particular cases (all men are mortal; Socrates . . .). The generic notion does not authorize any definition. It suggests a way of addressing a situation whose eventual success will be the relevance of the questions to which it gives rise. Generalities in the logical sense authorize classifications, with each particular case exemplifying the general characteristic that defines a set of notions. Whiteheadian philosophical generalities, and the notions he calls "generic," make the wager that the questions to which they will give rise will shed light on features that are important for each situation.

Importance is a Whiteheadian generic notion. It enables no classification, yet nevertheless does not condemn it: to classify may be what matters, for instance, for a botanist. This is not a matter of psychology, for if one questions botanists, they will speak of vegetal proliferation, of the thorny questions raised by each type of classification, in short, of an adventure that confronts one with plants. Every adventure thus calls forth the generic question "what does it make matter?" which can also mean "how is the contrast between success and defeat defined for it?" and this question will call forth others in turn, which will imply the trials, risks, and type of environment required for success, and so on.

As an example, but also in order to introduce myself, I will allow myself to sketch here the way I have tried to characterize modern experimental science. I have practiced an approach that could be called constructivist, but not in the sense of a theory of knowledge or an epistemology that affirms that not reality, but human activities alone are responsible for our

human beings, these producers of the knowledge we call 'experimental,' become active?" In other words, "what is the uniqueness of the adventure in which they have become engaged?" "what matters to them?" "what does success mean to them?"

Of course, many things are important for individuals, but here the question bears not upon them but on the way they define an achievement, and the way this definition engages them. In *The Invention of Modern Sciences*, I suggested that what unites experimenters, what forces them to become active and to think together, is a question that can only be asked in the laboratory: did this experimental arrangement provide the phenomenon being questioned with the ability to bear witness in a reliable way, concerning the way what is made observable about this phenomenon must be interpreted? Has it succeeded in conferring upon the phenomenon being questioned the role of "respondent" for the interpretation that is given to it?

The ability to resist the accusation of "being a mere construction," in the sense of a merely human (social, linguistic, technical, subjective) fabrication, is thus no longer the privilege of the experimental procedure, but its key element. It is what defines the demands of the environment on which the success of an experimental suggestion depends, and this ability does not exclude the human beings who become active, discuss, and hesitate, but solicits them and mobilizes them around the eventuality of this achievement. And this is an achievement that no theory of knowledge, no epistemology could justify, for it belongs to the order of the event, of what can happen but is not deserved, and does not correspond to any right. It is an achievement that is rare, extremely selective, and radically situated. What situates it is not the world, objectively deciphered at last, but the experimental apparatus, for the questions that matter are established around the experimental apparatus. It is here that human beings become active, and that an art of testing and of consequences is practiced, whose correlation is the signature of the event. The tests of an experimental proposition's reliability are not a goal in themselves; the true verification of a proposition concerns its consequences or the new possibilities that it makes conceivable and which, if they are fruitful, will gather researchers together, whatever epistemologists may say.

That this type of success could become the model of a theory of general knowledge, containing the disqualification of what is "merely subjective," is the sign of a propaganda operation. The event "here we can do something!" is transformed into a norm (most often emptied of what, for experimenters, "makes an event," so as to extend it to the totality of what is recognized as "scientific"), and everything that escapes this norm

is placed in the same sack, defined by the “why” of human subjectivity. The success story of this operation is part of the question “what has happened to us?” but in order to resist it there is no need to “deconstruct” the experimental achievement. On the contrary, it is by accepting it in its selective and rare uniqueness that we can understand that it is not “nature” that makes an experimenter think. Heidegger was right: in this sense, indeed, “science does not think.” What matters to experimenters are the objections and the tests to which their proposition will be subjected, and the future it makes it possible to envisage.

Such an approach offers a certain analogy with the fable of the twelfth camel, because it limits itself to adding an ingredient liable to produce a “sheer disclosure”: the confrontation only seemed inevitable because this ingredient had been left out of the problematic landscape. This obviously does not solve the very concrete problems raised by the role of science and of scientists in our society, but it separates these problems from what, for the experimenters, can only be a declaration of war: the judgment that what produces agreement between them is nothing more than a purely human construction. One can listen to scientists tell the story of their achievements without having to challenge them, for they are situated in, and belong to, an adventure that has nothing to say about what does not answer to its demands. The questions that issue forth from this adventure are added to the other human questions and may complicate them, but if they appear to take the place of questions that matter in other adventures, as constituting the “finally objective” version of them, there is no need for confrontation, and it is enough to search with trust for how the story has been transformed into propaganda.

However, this camel—which I would call “practical,” since the ingredient it adds designates what matters for experimental practices—does not accomplish the miracle of instantaneous reconciliation proposed by the original fable, any more than Whitehead’s “speculative” twelfth camel does. Instead, it proposes a way of addressing those who are divided into two antagonistic poles.

Thus, one can certainly ask scientists many things, but not to renounce what matters to them, and particularly what resonates in the question “is it publishable?”: the primacy of the objections of “competent colleagues,” the only objections that can place their proposition in danger, because they are the only ones capable of detecting a fault, an over-hasty hypothesis, a possible counterinterpretation. Quite the contrary, one would discern the possible destruction of the experimental adventure if the knowledge economy were to prevail and transform competent colleagues into complacent colleagues, because they share the same dependencies. On the contrary,

one will wish that the link between reliability and the presence of those liable to object may be maintained "outside the laboratory": that is, that all those who are competent to put every proposition to the test should actually be gathered around it.

In our academic world, however, where publication has become a question of life or death and where everyone henceforth depends on "competent colleagues," particularly when gathered in reading committees or evaluatory committees, questions also arise for those who have gathered around the other pole, which could be called the "critical" pole. They too are situated by the question of success, and of what success renders important. Is your success that of Grendel? That of the justice-dealers, working in the name of a general truth, which demands the destruction of those who do not bow down before it? Or else, what are the questions that make you think, around which the demands that define what matters for you are organized?

And it arises, in particular, for me. Who are my colleagues? What definition of what matters do I share with them? To what tests shall my proposition be subjected? The person who raises this question is intensely aware of the fact that, if her publications had depended on most of her "competent colleagues," that is, on those who mimic the sciences by demanding that an argument present itself as capable of forcing the agreement of all competent philosophers, she would have been professionally condemned. To think with Whitehead is also to affirm that the success of a philosophical proposition is not to resist objections but to give rise to what he himself calls a "leap of the imagination" (PR, 4)—and the point is to experiment with the effects of that leap: what it does to thought, what it obliges one to do, what it renders important, and what it makes remain silent.

Unlike French, English does not allow the word "experiment" to be used for an experience that implies an active, open, and demanding attention. No more than laboratory experimentation can be reduced to careful, systematic observation, can experience or the transformation of experience brought about by a scientific proposition be reduced to a new way of seeing. In both cases, a reciprocal influence is implied, that puts to the test both what brings about and what is brought about. This is the type of test that this book, which is written "with" Whitehead, demands. What is at stake in it is not to share a vision, nor to provide a definitive interpretation of Whiteheadian thought, but to experiment/experience in the present what it means to ask the question "What has happened to us?" in the way he suggests.

Choices of Writing

To try to render a philosophical proposition “present” means first of all to try to avoid the form of commentary that is suitable for the exposition of an author’s beliefs, of what he or she thinks. It is to make thought inseparable from the problem of “how to think” that obliges this thought. This is why I have chosen an approach that has the look and feel of a narration, accompanying Whitehead over the course of a few years (from *The Concept of Nature*, published in 1920, to *Process and Reality*, published in 1929), in which an itinerary is accomplished from nature to metaphysics, and from metaphysics to cosmology. This is not a real story. As I have already emphasized, we have practically no biographical testimony that allows us to tell the story of how the person of interest experienced this itinerary. It is in the text itself (with one exception: “April 1925”) that I have tried to follow the construction of the problems and the way they mutate and ricochet by colliding with the questions and demands for which they open the way.

The narrative form indicates that the person who is reading *The Concept of Nature* or *Science and the Modern World* is not reading them as a contemporary of their writing, but with the knowledge of what was going to happen. This does not, I hope, mean a finalized reading, imposing upon the texts an end that was not theirs, but a reading that tries to decipher the paths of an adventure that has the nature of a riddle. At the beginning of *The Concept of Nature*, Whitehead emphasized the extent to which it would be hard for his readers to accept that he would indeed confine his problems within the narrow limits he had just described, whereas it is precisely beyond these limits that things usually start to get exciting (CN, 48). At the end of *Process and Reality*, the same author seems to have exploded all the limits that modern good manners impose upon thought.

Another approach would have been possible: it would have started out from the questions raised by this world, and would have sought the way they arise in Whiteheadian terms, as opportunities for “applications” of the conceptual scheme proposed by Whitehead. In particular, it would have been possible to give more space to contemporary questionings, that is, to “bring Whitehead up to date,” and to affirm his relevance today. One of the reasons that turned me away from this possibility is the ease with which relevance can become a model, that is, a source of answers. Whitehead’s proposition does not address itself to knowledge in the sense that it could be detached from the situations in which it is operative. It does not constitute a vision of the world or a “new paradigm”—indeed, this is probably the worst confusion that can occur with regard to it. It is addressed

to our "modes of thought," in the way a tool addresses our modes of action, modifying the relation that provides their identity relative to those who act and to that on which they act, by redistributing what is proposed as doable or not doable. In other words, it addresses the thinker *qua* situated, in the way that the thinker defines his or her situation.

I had the great good luck to experience the efficacy proper to Whitehead's thought on the occasion of a twice-annual course, which had the particularity of gathering senior students in philosophy and other senior students who had never done philosophy before. Each time, an experience took place, both collective and individual, that suppressed all hierarchy between philosophers and non-philosophers, but gathered them together in a sheer discovery that is different for each, because it is relative each time to their area of competence: "one can think like that!" Faced by the problem of a book to be written, my concern was to rediscover, by other means, what the interventions, questions, and astonishments contributed to the oral exercise of the class. Or else, to use an expression dear to Gilles Deleuze, to provide myself with the constraints capable of forcing me to "think Whitehead down the middle" in the twofold sense of the term: without a "beginning" from which the rest could be deduced, and face to face with the problems to which it gives rise. How could one fashion a textual apparatus that could introduce the unforeseen nature of the objection that hinders the unfolding of a sovereign intentionality?

It is said that Whitehead hated to be bored, and elaborated his thought in the presence of his students. Most of his philosophical writings have their origin in lectures, which he later worked up. Perhaps the procedure I have chosen is in response to this peculiar character of theirs: I chose it first of all as an experiment, "just to see," and then with a surprised interest in its effects, which stripped me of an author's position without thereby constraining me to disappear, quite the contrary: "to let Whitehead" (and a few others) "do the talking" in long fragments which, rather than quotations, are interventions, and to make my own text the soliloquy of a person who is exploring in her way, always in her way, what the intervention makes happen for her.

Some of these interventions will be "cries," others elaborations, in which thought is "put to work" in real time, but still others are genuine operators of brutal bifurcation. To let Whitehead do the talking at some length always means exposing oneself to the risk that he may play the nasty trick of derailing the orderly train of an explanation toward a seemingly incongruous horizon. And that is precisely what students do when a class awakens their thought, incites their objections, their "but then," their "in that cases." Perhaps, as well, this is the way Whitehead himself functioned when the

presence of his students provoked the risk of thought “in real time,” re-creating at every step the meaning or the necessity of the next step. I do not know to what extent the solution I have experimented with will suit those who will read this book. What I can say is that it has made of its writing an adventurous and demanding itinerary, in which “what I already knew” has not ceased to produce new consequences and also the most close-fought work of negotiation with syntax and composition I have ever known.

The reader will note that I have, moreover, made the somewhat acrobatic choice of avoiding all footnotes. This is not the easy solution, but instead, once again, a constraint: the text should “hold” as it is, and above all should not have the appearance of an exhaustive exposition. A note, in general, refers either to a direction that the textual itinerary could have taken, and which the author decides not to take any further, or to a technical discussion that the author believes would overburden the text. The former type of note implies that the number of decisions about the itinerary is limited, but here it is not, for at every step other directions could have been taken, since each step is in fact a decision in the heart of a labyrinth. As far as the “technical” notes are concerned, most of them would have referred to the network of discussions and controversies that weave the links between process philosophers. But this book was written in French, that is, for readers who are foreign to this network, largely unknown in Francophone lands. I am aware that translation transforms this aspect of situation, but it does not transform the conception of the book itself, which is also the situation of the person who conceived it and who did not encounter “process philosophy” until well after her encounter with Whitehead. With the crucial exception of the reading proposed by Lewis Ford, which I adopt, it is the baton of Whitehead’s text that I have wished to take up, and not of the discussions that concern him, for the question for me was not—above all—to claim to hold the “right interpretation,” that is, to discuss other possible interpretations as well. What matters to me is to inhabit the movement that Whitehead proposes for thought, and, without stopping this movement, to experience and put to the test the way in which it is or is not able to receive questions that Whitehead did not ask because they are not those of his time. In other words, my choice is not to interpret but to try to transmit, that is, also, as every lover of Whitehead knows, to take up again in my way, tying it in to my questions, that which has no other truth than the set of resummptions to which it will give rise.

Another testimony to this choice is the absence in the index of the “great Whiteheadian concepts.” They intervene “everywhere” (for instance,

“event,” “object,” “nature,” or “organism” in the first part, “to feel,” “concrecence,” “actualization,” “society,” “subject” in the second part), and taking them up again in the index would have produced something monstrous. I have, however, privileged certain transversal themes that characterize the way I have inhabited the Whiteheadian movement. Some, such as interstices and infection, are not even included in the Whiteheadian indices, while others are not properly Whiteheadian. Yet they have imposed themselves upon me as themes, in the musical sense of the term, and I thought that the index might help those who might encounter one of these themes in the manner of “well, here it is again” and would wonder where it has already intervened.

By another aspect, the index bears witness to the way this book tries to prolong the Whiteheadian movement outside of the usual categories of philosophy: the heading “social roles or types” brings together names of practitioners (mathematician, physician, chemist, biologist, psychologist, etc.) and names of animals (rabbit, fly, bacteria, etc.). I have taken my inspiration in this regard from Bergson who, in the index to his *Evolution créatrice*, juxtaposed the names of those who, for him, translated the culmination of two divergent paths of evolution: philosophers, on the one hand, parasites and insects on the other. Except that the point here is not to propose a scale of beings, distributing to each that to which it may lay claim. What interests me is the adventurization of the experience that philosophies of the subject have too often “domesticated” under the categories of the reflexive consciousness.

It is the task of ethologists, and all those who live in attentive contact with animals, to question, specify, and enrich what animals make us feel and think. It is the job of scientific communities to test the relevance of the problematic definitions that make them work. But it belongs to speculative thought to fight against the impoverishment of experience, particularly against its confiscation by the great theoretical debates that oppose mankind, “endowed with consciousness,” to all the others supposedly deprived of it. Obviously, speculative adventurization does not produce miracles: I do not claim to speak for flesh and blood physicians, psychologists, and sociologists any more than I claim to have access to the experience of a butterfly or a rabbit. When I refer to practitioners and to animals, then, the goal is not to penetrate their own experience but to think on the basis of the “habits” that enable us to say “a rabbit” or “a sociologist,” that is, to evoke a style or experience or adventure that is endowed with a certain stability.

Alongside the Whiteheadian references, I have therefore added a few others, faithful in this regard to the nomadism proper to British philoso-

phy, as it has been characterized by Gilles Deleuze and Félix Guattari: not to build nor to found, but to inhabit. "A tent is enough for them [. . .] The concept is a habit acquired by contemplating the elements from which one proceeds (hence the very special Greekness of British philosophy, its empirical Neoplatonism). We are all contemplations, and therefore habits. *I* is a habit. There is concept wherever there is habit, and habits are made and unmade on the level of immanence and radical experience: they are 'conventions'. This is why British philosophy is a free and savage creation of concepts. Given a proposition, to what convention does it refer, what is the habit that constitutes its concept? This is the question of pragmatism" (QPh, 101).

"A free and savage creation of concepts," perhaps: but one can only "think with Whitehead" if one is willing to separate the adjective "free" from the noun "freedom," in the sense of absence of constraints, and the adjective "savage" from the noun "savagery," in the sense of an appetite for destruction. Free and savage creation, therefore, but not, especially not, ferocious, not defining that with which it deals as a prey to be attacked. The point is not to declare war on the conventions that bind us, the habits that enable us to be characterized. Instead, it is merely to place on the same level—that is, in adventure—all of our judgments, or our "as is well knowns," and thus to separate them actively from what gives them the power to exclude and to disqualify.

In closing this introduction, I would like to offer my apology to the readers who might be shocked if they encounter a physician or a poet "in the masculine." Insofar as they are figures of thought, I would have liked to place them in the neuter, as I would have liked to place in the neuter that God who, for Whitehead, is a "he." But I could not bring myself to associate them with this kind of a problem, for they would then have designated real persons. I hope these excuses will be accepted, for I feel deeply indebted for the attention that American thinkers have taught us to devote to the way in which words influence thought.